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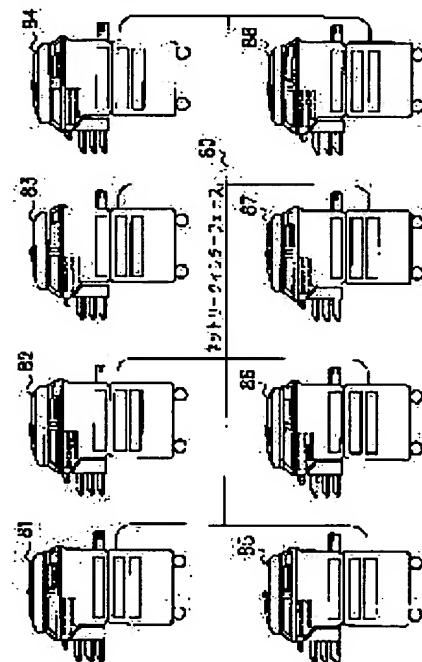
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(54) IMAGE FORMING DEVICE NETWORK AND ITS CONNECTING OPERATION METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To provide the image forming device network which makes initially set values effective even on other image forming device once the initially set values are set on one arbitrary image forming device when the image forming devices are connected to a network and connection printing is carried out.

SOLUTION: The digital image forming devices 81 to 88 are connected to the network 80 and a user is able to specify an arbitrary image forming device among those image forming devices as a master or slave device. When the user specifies the image forming device 81 as a master machine, selected image forming devices 82 and 83 on the master machine 81, and sets a connection, the devices 82 and 83 serve as slave machines. Image data read on the master machine 81 and the initially set values of a printing function set on the master machine 81 are sent to the slave machines 82 and 82 through the network and print output can be carried out on the slave machines 82 and 83 according to the image data and initially set values. An image forming device can be used alone without being connected to other image forming devices.



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CLAIMS

[Claim(s)]

[Claim 1] In the image formation equipment network system to which two or more image formation equipments are connected said one image formation equipment of arbitration The connection actuation means which connects with said other image formation equipments, and prints by transmitting image information to these other image formation equipments, As opposed to said image formation equipment of the others with which said initial value set up by initial value setting means to set up the initial value of one's function, and said initial value setting means was connected by said connection actuation means It has a initial value transmitting means to transmit. Said other image formation equipments The image formation equipment network system characterized by having a initial value receiving means to receive said initial value, and a initial value modification means to change one's initial value based on said initial value received by said initial value receiving means.

[Claim 2] Said image formation equipment is an image formation equipment network system according to claim 1 characterized by having first selection means to choose whether it is used independently or it is used, connecting with said other image formation equipments.

[Claim 3] Said image formation equipment is an image formation equipment network system according to claim 1 or 2 characterized by whether to suppose that it is effective and having the second selection means which chooses whether it is no for every each equipment of said image formation with which the initial value set up by said initial value setting means was connected by said image formation equipment connection means.

[Claim 4] Said initial value set up on said other image formation equipments by said image formation equipment is an image formation equipment network system given in either of claims 1-3 characterized by supposing that it is effective on these said other image formation equipments only when connecting with said other image formation equipments with said connection actuation means.

[Claim 5] In the connection actuation approach of an image formation equipment network system that two or more image formation equipments are connected The first selection process which chooses whether it is used independently or it is used, connecting with said other image formation equipments in said one image formation equipment of arbitration, When using it according to the initial value setting process of setting up the initial value of one's function, and said first selection process, connecting with said other image formation equipments is chosen, Have the initial value transmitting process transmitted to said image formation equipment of the others with which said initial value set up according to said initial value setting process was connected, and it sets to said other image formation equipments. The connection actuation approach of the image formation equipment network system characterized by having the initial value receiving process of receiving said initial value, and the initial value modification process of changing one's initial value based on said initial value received by said initial value receiving means.

[Claim 6] In the connection actuation approach of an image formation equipment network system that two or more image formation equipments are connected The first selection process which chooses whether it is used independently or it is used, connecting with said other image formation equipments in said one image formation equipment of arbitration, When using it according to the initial value setting process of setting up the initial value of one's function, and said first selection process, connecting with said other image formation equipments is chosen, According to the second selection process which chooses whether they are whether it is supposed that it is effective for every each equipment of said image formation with which said initial value set up according to said initial value setting process was connected, and no, and said second selection process In said image

formation equipment of the others which have the initial value transmitting process chosen when said initial value was confirmed of transmitting a initial value to said other image formation equipments, and were connected with said image formation equipment The connection actuation approach of the image formation equipment network system characterized by having the initial value receiving process of receiving said initial value, and the initial value modification process of changing one's initial value based on said initial value received according to said initial value receiving process.

[Claim 7] The connection actuation approach of the image formation equipment network system according to claim 5 or 6 characterized by supposing that it is effective on these said other image formation equipments only when said initial value set up on said other image formation equipments by said image formation equipment is connected with these said other image formation equipments by said connection actuation means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to an image formation equipment network system equipped with a connection moving function, and its connection actuation approach.

[0002]

[Description of the Prior Art] Conventionally, the image data of the manuscript of one sheet is incorporated on one image formation equipment, this image data is transmitted through a network, and connection of the image formation equipment which makes printing possible on other image formation equipments connected to the network is performed.

[0003] two sets of for example, other slave machines with which this image data was connected when 300 image data of one sheet read with one image formation equipment (master machine) of a certain arbitration was printed and other two image formation equipments (slave machine) connected to this image formation equipment through the network were connected -- transmitting -- each slave -- it is on board and a printout becomes possible. For this reason, it becomes possible to share 100 sheets at a time and to print by total of three image formation equipments, respectively, and can prevent placing the burden of printing on compaction of printing time amount, or one specific image formation equipment.

[0004] Moreover, when carrying out connection use of the image formation equipment, in case the document printed in each image form equipment after printing termination is unified by making contrary to a master machine the output screen by which the printout was carried out with the slave machine, image formation equipment with the unnecessary exchange activity of a page is indicated by JP,10-112769,A.

[0005]

[Problem(s) to be Solved by the Invention] however, the case where a certain image formation equipment (master machine) carries out connection use with other image formation equipments (slave machine) conventionally -- setting -- a master -- it was not reflected, even if it was on board and, as for the initial values (the concentration of a copy scale factor, a color, and a color, image quality, number of sheets, a paper size, the printout approach, etc.) of the set-up various copy output functions, the slave machine was connected For this reason, the need of carrying out for every slave machine needed to carry out again the same setup as a setup of a initial value done with the master machine, and there was a trouble that a setup had to be repeated.

[0006] Moreover, the initial value of each connected slave machine must be the same as that of a master machine. If the initial value mistaken by each slave on a plane was set up, there was a trouble that the image quality printed with the slave machine will differ from the image quality printed with the master machine. Furthermore, when arranged in the location where each connected slave machine separated from the master machine, the user went to each slave machine and there was also a trouble that it was necessary to carry out a setup of a initial value.

[0007] Moreover, in case independent use of this image formation equipment is carried out after connection use of the image formation equipment is carried out and a initial value is changed, it may be necessary to return to the initial value currently used before carrying out connection use. In this case, there was a trouble that a setup for returning a initial value to the initial value set up before had to be performed.

[0008] It is in the image formation equipment network system which carries out connection use of the image formation equipment efficiently, and offering that connection actuation approach by setting up initial setting of the function of each image formation equipment which this invention was made in view of said trouble, and was

connected with this image formation equipment through the network on one image formation equipment of arbitration.

[0009]

[Means for Solving the Problem] In the image formation equipment network system to which the image formation equipment of plurality [invention / according to claim 1] is connected in order to solve said technical problem one image formation equipment of arbitration The connection actuation means which connects with other image formation equipments and prints by transmitting image information to other image formation equipments, As opposed to other image formation equipments with which the initial value set up by initial value setting means to set up the initial value of one's function, and the initial value setting means was connected by the connection actuation means It has a initial value transmitting means to transmit, and is characterized by other image formation equipments having a initial value receiving means to receive a initial value, and a initial value modification means to change one's initial value based on the initial value received by the initial value receiving means.

[0010] Invention according to claim 2 is characterized by having first selection means to choose whether image formation equipment is used independently or it is used, connecting with other image formation equipments in invention according to claim 1.

[0011] It is characterized by whether in invention according to claim 1 or 2, image formation equipment confirms invention according to claim 3 for every image formation equipment with which the initial value set up by the initial value setting means was connected by the image formation equipment connection means, and having the second selection means which chooses whether it is no.

[0012] The initial value by which invention according to claim 4 was set up on other image formation equipments with image formation equipment in invention given in either of claims 1-3 is characterized by supposing that it is effective on other image formation equipments, only when connecting with other image formation equipments with the connection actuation means.

[0013] In the connection actuation approach of an image formation equipment network system that two or more image formation equipments are connected, as for invention of the connection actuation approach according to claim 5 The first selection process which chooses whether it is used independently or it is used, connecting with other image formation equipments in one image formation equipment of arbitration, When using it according to the initial value setting process of setting up the initial value of one's function, and the first selection process, connecting with other image formation equipments is chosen, Have the initial value transmitting process transmitted to other image formation equipments with which the initial value set up according to the initial value setting process was connected, and it sets to other image formation equipments. It is characterized by having the initial value receiving process of receiving a initial value, and the initial value modification process of changing one's initial value based on the initial value received by the initial value receiving means.

[0014] In the connection actuation approach of an image formation equipment network system that two or more image formation equipments are connected, as for invention of the connection actuation approach according to claim 6 The first selection process which chooses whether it is used independently or it is used, connecting with other image formation equipments in one image formation equipment of arbitration, When using it according to the initial value setting process of setting up the initial value of one's function, and the first selection process, connecting with other image formation equipments is chosen, According to the second selection process which chooses whether they are whether it is supposed that it is effective for every image formation equipment with which the initial value set up according to the initial value setting process was connected, and no, and the second selection process In other image formation equipments which have the initial value transmitting process chosen when the initial value was confirmed of transmitting a initial value to other image formation equipments, and were connected with image formation equipment It is characterized by having the initial value receiving process of receiving a initial value, and the initial value modification process of changing one's initial value based on the initial value received according to the initial value receiving process.

[0015] In invention according to claim 5 or 6, invention of the connection actuation approach according to claim 7 is characterized by supposing that it is effective on other image formation equipments, only when the initial value set up on other image formation equipments by image formation equipment is connected with other image formation equipments by the connection actuation means.

[0016]

[Embodiment of the Invention] Next, with reference to an accompanying drawing, the gestalt of operation of the image formation equipment network system of this invention is explained to a detail.

[0017] Drawing 1 is drawing showing the configuration of 1 operation gestalt of the image formation equipment of this invention, and drawing 2 is drawing showing the configuration of the control unit 30 of image formation equipment.

[0018] A push on the start key 34 on a control unit 30 feeds the position on contact glass 6 with the manuscript bundle put on the manuscript base 2 in the automatic manuscript feed gear (ADF) 1 by turning the image side of a manuscript up with the feed roller 3 and the feed belt 4 from the bottom manuscript.

[0019] The manuscript which reading ended after reading the image data of the manuscript on contact glass 6 by the reading unit 50 is discharged by the feed belt 4 and the discharge roller 5. Furthermore, when it is detected that the following manuscript is in the manuscript base 2 by the manuscript set detection 7, it is fed on contact glass 6 like the Maebaru draft. The feed roller 3, the feed belt 4, and a discharge roller 5 are driven by the motor.

[0020] Paper is respectively fed to the transfer paper loaded into the 1st tray 8, the 2nd tray 9, and the 3rd tray 10 by the 1st feeding equipment 11, the 2nd feeding equipment 12, and the 3rd feeding equipment 13, and it is conveyed to the location which contacts a photo conductor 15 by the vertical conveyance unit 14.

[0021] The image data read in the reading unit 50 is written in a photo conductor 15 by the laser from the write-in unit 57, and a toner image is formed by passing the development unit 27.

[0022] While a transfer paper is conveyed with the conveyance belt 16 at rotation of a photo conductor 15 and uniform velocity, the toner image on a photo conductor 15 is imprinted. Then, an image is fixed in the fixing unit 17 and it is discharged by the finisher 100 of after-treatment equipment by the delivery unit 18.

[0023] The finisher 100 which is after-treatment equipment can usually lead the transfer paper conveyed with the delivery roller 19 of a body in delivery roller 102 direction and the direction of the staple processing section. By changing the change plate 101 upwards, paper can usually be delivered to a paper output tray 104 side via the conveyance roller 103. Moreover, the change plate 101 can be conveyed on the staple base 108 via the conveyance roller 105 and the delivery roller 107 by changing downward.

[0024] Whenever the delivery of one sheet goes away, a paper end side is arranged by the jogger 109 for *****, and the transfer paper loaded into the staple base 108 is filed by the stapler 106 with a part of completion of a copy. The transfer paper group filed with the stapler 106 is contained by own weight at the staple completion paper output tray 110.

[0025] On the other hand, the usual paper output tray 104 is a paper output tray movable forward and backward. The paper output tray section 104 movable forward and backward moves the copy by which sorting was carried out with every manuscript and the image memory forward and backward for every part, and classifies copy paper discharged in simple.

[0026] It is setting the branching pawl 112 for a path change to the bottom, and stocks to the double-sided feeding unit 111 once without leading the transfer paper fed [paper] to which and formed from each medium trays 8-10 to a paper output tray 104 side, when forming an image to both sides of a transfer paper.

[0027] Next, in order to imprint the toner image again formed by the photo conductor 15, paper is re-fed to the transfer paper stocked by the double-sided feeding unit 111 from the double-sided feeding unit 111, it sets the branching pawl 112 for a path change to the bottom, and leads it to a paper output tray 104. Thus, when creating an image in both sides of a transfer paper, the double-sided feeding unit 111 is used.

[0028] A photo conductor 15, the conveyance belt 16, the fixing unit 17, the delivery unit 18, and the development unit 27 are driven by the Maine motor 25, and the transfer drive of each feed equipments 11-13 is respectively carried out with the feed clutches 22-24 in the drive of the Maine motor 25. The transfer drive of the vertical conveyance unit 14 is carried out with the middle clutch 21 in the drive of the Maine motor 25.

[0029] There are the liquid crystal touch panel 31, a ten key 32, the clearance/stop key 33, the print key 34, the mode clear key 35, and an initialization key 37 in a control unit 30, and a function key 36, number of copies, the message that shows the condition of image formation equipment are displayed on the liquid crystal touch panel 31.

[0030] Drawing 3 is drawing showing the example of a display of the liquid crystal touch panel 31 of the control unit 30 by the gestalt of operation of this invention.

[0031] The key an operator indicates the selected function to be by touching the key displayed on the liquid

crystal touch panel 31 is reversed black. Moreover, when the detail of a function must be specified (a variable power value, concentration, printing image quality, paper size, etc.), it is touching a key and the setting screen of a detail function is displayed. Since the dot drop is being used for the liquid crystal touch panel 31, it can perform the optimal display at that time graphically. As for the mode chosen, a half-tone-dot-meshing indication of the key is given.

[0032] In drawing 3, the upper left is the message area 38 which displays the message of "it can copy", "waiting", etc. Moreover, the area of the right is the copy number-of-sheets display 39 which displays the set number of sheets. The area of the lower part Image concentration The automatic concentration key 40 and transfer paper which are adjusted automatically The automatic form selection key 41 and copy which are chosen automatically every [a part] -- the processing arranged in order of a page The sort key 42 and copy to specify The processing classified for every page The stack key 43 to specify and the thing by which sorting application was carried out A part the processing filed every The staple key 44 and scale factor to specify It is the printing key 49 which sets up printing of elimination / navigation key 48 which sets up the double key 45, such as setting to actual size, the variable power key 46 which sets expansion/contraction scale factor, the double-sided key 47 which sets up double-sided mode, binding margin mode, etc., a stamp, a date, a page, etc.

[0033] Actuation until it performs an image reading means and latent-image formation of an image on a recording surface is explained referring to drawing 1.

[0034] A latent image is potential distribution which produces an image by changing and irradiating optical information on a photo conductor side. The reading unit 50 consists of the contact glass 6 and the optical scan systems which lay a manuscript, and is constituted from the exposure lamp 51, the 1st mirror 52, a lens 53, and CCD series 54 grade by the optical scan system. The exposure lamp 51 and the 1st mirror 52 are fixed on the 1st carriage which is not illustrated, and the 2nd mirror 55 and the 3rd mirror 56 are being fixed on the 1st carriage which is not illustrated.

[0035] When reading a manuscript image, the 1st carriage and the 2nd carriage are mechanically scanned with the relative velocity of 2 to 1 so that the optical path length may not change. This optical scan system is driven with the scanner drive motor which is not illustrated. A manuscript image is read by CCD series 54, is changed into an electrical signal and processed.

[0036] An image scale factor changes by moving a lens 53 and CCD series 54 to a longitudinal direction in drawing 1. That is, corresponding to the specified scale factor, a location is set as the longitudinal direction of a lens 53 and CCD series 54.

[0037] The write-in unit 57 consisted of a laser output unit 58, an image formation lens 59, and a mirror 60, and equips the interior of the laser output unit 58 with the rotating polygon (polygon mirror) which carries out fixed-speed rotation by the laser diode and motor which are a laser light source at high speed.

[0038] The laser beam irradiated from the laser output unit 58 polarizes by the polygon mirror which carries out fixed-speed rotation, passes along the image formation lens 59, is turned up by the mirror 60, and carries out condensing image formation on a photo conductor side. An exposure scan is carried out in the direction which a photo conductor rotates, and the direction (main scanning direction) which goes direct, and the laser beam which polarized records the Rhine unit of the picture signal outputted from the selector 64 of the image-processing section. By repeating horizontal scanning with the predetermined period corresponding to the rotational speed and recording density of a photo conductor, an image (electrostatic latent image) is formed on a photo conductor side.

[0039] The laser beam outputted from the write-in unit 57 is irradiated by the photo conductor 15 of an image imaging system. The beam sensor which generates a horizontal-scanning synchronizing signal in the location which can irradiate the laser beam near the end of a photo conductor 15 although not illustrated is arranged. The control signal for outputting and inputting the picture signal which the image recording initiation timing of a main scanning direction controls and mentions later based on this horizontal-scanning synchronizing signal is generated.

[0040] Drawing 4 is drawing showing the configuration of the image-processing section (image reading section and image write-in section) by the gestalt of operation of this invention.

[0041] The light irradiated from the exposure lamp 51 irradiates a manuscript side, it carries out image formation of the reflected light from a manuscript side with an image formation lens (not shown) with CCD series 54, receives light, performs photo electric conversion, and changes it into a digital signal by A/D

converter 61.

[0042] After a shading compensation 62 is made, as for the picture signal changed into the digital signal, MTF amendment, gamma amendment, etc. are made in the image-processing section 63. In a selector 64, a change for the variable power section 71 or the image memory controller 65 is performed in the destination of a picture signal.

[0043] According to the rate of variable power, enlarging or contracting of the picture signal which went via the variable power section 71 is carried out, and it is sent to the write-in unit 57. It has composition which can output and input a picture signal bidirectionally between the image memory controller 65 and the selector 64. Although not clearly shown especially in drawing 4 R> 4, it has the function which chooses I/O of two or more data so that the image data (for example, data outputted from data processors, such as a personal computer) supplied to the image-processing section (IPU) through the SCSI driver 75 from the exterior besides the image data inputted from the reading section 50 can also be processed.

[0044] Moreover, the image-processing section is equipped with ROM69 and RAM70 which store CPU68 which performs setup in image memory controller 65 grade, and control of the reading section 50 and the write-in section 57, and its program and data. Furthermore, CPU68 performs writing of the data of an image memory 66, and read-out through the memory controller 65.

[0045] Drawing 5 illustrates the picture signal in the selector 64 of the gestalt of operation of this invention.

[0046] The picture signal for 1 page in a selector 64 is explained referring to drawing 5. The frame gate signal (/FGATE) 151 expresses the shelf-life of the direction of vertical scanning of the 1-page image data 154. The horizontal-scanning synchronizing signal (/LSYNC) 152 is a horizontal-scanning synchronizing signal in every line, is the predetermined clock after this signal starts, and becomes effective [a picture signal]. The signal which shows that the picture signal of a main scanning direction is effective is the line gate signal (/LGATE) 155.

[0047] These signals synchronize with the pixel synchronizing signal 153 (a pixel clock, VCLK), and 1-pixel data are sent to one period of VCLK. The image-processing section (IPU) 49 has the developmental mechanics of separate /FGATE, /LSYNC, /LGATE, and VCLK to an image input and each output, and the combination of various image I/O of it becomes possible.

[0048] Drawing 6 illustrates the memory controller 65 in drawing 4, and the data flow in an image memory 66.

[0049] The detail of an image memory 66 is explained to be the memory controller 65, referring to drawing 6. The memory controller 65 has the block of the input data selector 161, 162 or primary image composition compression / expanding 163, and the 164 or secondary output data selector compression / expanding 165. A setup of the control data to each block is performed from CPU68. The address in drawing 4 and data show image data, and the data connected to CPU68 and the address are not illustrated.

[0050] An image memory 66 consists of the primary secondary storage 166 and 167. Primary storage 166 uses the memory in which rapid access, such as DRAM, is possible so that an abbreviation synchronization may be carried out and data read-out from the data writing to memory or the memory at the time of an image output can carry out to an input image data transfer rate at a high speed.

[0051] Primary storage 166 has composition which the magnitude of the image data which processes divides into two or more area, and can be performed to coincidence in I/O of image data in the interface section with a memory controller. Moreover, primary storage 166 is connected to the interface with a memory controller with 2 sets of address data lines, the object for a lead, and the object for lights, in order to enable activation of an image entry of data and an output to juxtaposition respectively in the each divided area. Thereby, it is an input (light) about an image to area 1. While carrying out, it is an output (lead) about an image from area 2. Actuation of carrying out is attained.

[0052] Secondary storage 167 is mass memory which saves data, in order to perform composition of the inputted image, and sorting, and it is performing processing of a I / O data through the primary storage. If the primary secondary storage uses the component in which rapid access is possible, the primary two degrees are fair, and it can process data, and can also perform control comparatively easily. However, although an access rate is not so quick to secondary storage 167 since components, such as DRAM, are expensive, it is cheap and the mass record medium is used.

[0053] By adopting the above configurations, the image memory 66 makes it possible to realize cheaply processing of I/O of a lot of image data, preservation, processing, etc. with a comparatively easy configuration.

[0054] Next, the outline of actuation of the memory controller 65 is explained.

[0055] When performing an image input (preservation to an image memory), the input data selector 161 chooses the image data which performs the writing to an image memory [from] (primary storage 166) among two or more data. The image data chosen by the input data selector 161 is supplied to the image composition 162, and performs composition with the data already saved in the image memory. The image data processed by the image composition 162 compresses data by primary compression / expanding 163, and writes the data after compression in primary storage 166. After the data written in primary storage 166 compress further by secondary compression / expanding 165 if needed, they are saved at secondary storage 167.

[0056] When performing an image output (read-out from an image memory), the image data memorized by primary storage 166 is read. When the image used as the candidate for an output is stored in primary storage 166, the image data of primary storage 166 is elongated by primary compression / expanding 163, and it outputs by choosing the data after expanding, or data after performing image composition with the data after expanding, and input data by the output data selector 164.

[0057] The image composition 162 processes selection (the dual output to the output destination change of both write back to an image output and primary storage 166 is also possible) of the output destination change of the data of primary storage 166, and the data after composition (it has the phase-adjustment function of image data) with input data, and composition etc. When the image used as the candidate for an output is not stored in primary storage 166, after elongating the image data for an output stored in secondary storage 167 by secondary compression / expanding 165 and writing the data after expanding in primary storage 166, image output actuation is performed.

[0058] Moreover, by terminating the set of mode setting and a manuscript and reserving, although it has the function of reservation of operation and, as for the image formation equipment of the gestalt of operation of this invention, copy actuation cannot be started in image formation equipment at the time of the heating middle class of fixing, when copy actuation becomes good, it is possible in starting copy actuation automatically after fixing heating termination.

[0059] In this example, although under fixing heating is set as the object which can be reserved [of operation], in the case of the LCT tray rise time, polygon motor rotation stability time amount, and the toner supply actuation middle class, it becomes a candidate for reservation of operation besides this.

[0060] Drawing 7 is drawing showing the example of a hard configuration by the gestalt of operation of this invention.

[0061] Although the hard block diagram of drawing 7 constitutes the system from the image readout section 171, the image write-in section 172, a system controller 173, the memory unit 174, the user limit device 175, the body detection sensor 176, the remote diagnostic equipment (CSS) 177, the clock 178, and the control unit 179, the memory unit 174 is required only when realizing a memory function. Therefore, to realize only the usual copy function system, the memory unit 174 is not required.

[0062] If it becomes a certain specific time amount, the clock 178 is required, only when booting a machine or realizing a weekly timer function [shut / function]. Moreover, the body detection 176 is required, only when the user has been approached in front of a machine at the time of preheating mode and it realizes the function to cancel preheating mode automatically, and CSS177 is a function which notifies a service center automatically when the telediagnosis, i.e., the error of a machine, occurs, or carries out the monitor of the running state/the busy condition of a machine from a remote place. Thus, when the above maintenance control functions are required, it is good for a public line to connect through management equipment 221.

[0063] The DRAM block 180 in the memory unit of drawing 7 is for memorizing the picture signal read in the image reading section, and makes possible the image data transfer saved in the image write-in section according to the demand from a system controller. Moreover, the compressed block 181 possesses compression functions, such as MH, MR, and a MMR method, can compress the image read once and can aim at improvement in the utilization ratio of memory (DRAM). Moreover, rotation of an image is realized by changing the address read from the image write-in section, and its direction. DMA (Direct memory access) Without minding CPU, block 182 delivers data directly and is enabling delivery of high-speed data.

[0064] Example of a hard configuration of drawing 7 - At I, control of the image reading section 171, the image write-in section 172, the memory unit 174, and CSS177 is controlling only by CPU183 of a system controller. On the other hand, it is the example of a hard configuration of this drawing. - In II, CPUs 187-189 are given to

the image readout section 184, the image write-in section 185, and the memory unit 186, respectively, and the command from a system controller 173 to each controller is transmitted through a control signal line. Thus, a system hard configuration can be constituted freely.

[0065] Drawing 8 is drawing showing the example of a network system of the image formation equipment by the gestalt of operation of this invention.

[0066] In drawing 8, eight digital image formation equipments 81-88 are connected to a network 80. The number not only of eight sets but arbitration is possible for the image formation equipment connected. A user can specify the image formation equipment of arbitration as a master machine or a slave machine from these image formation equipments. Moreover, one image formation equipment of arbitration cannot be connected with other image formation equipments, but can also be used independently.

[0067] For example, 82 and 83 will become a slave machine, if a user sets up image formation equipment 81 as a master machine and sets up choosing and connecting the image formation equipments 82 and 83 on this master machine 81. The initial value of the image data read on the master machine 81 and the print facility set up on the master machine 81 is transmitted through a network 80 to the slave machines 82 and 83. The slave machines 82 and 83 make a change of initial setting for their initial value based on the initial value which received. The slave machines 82 and 83 can print the image data which used this initial value and received.

[0068] furthermore, connection -- the initial value set up on the slave machine 82 and 83 working -- the master machine 81 and a connection working chisel -- if it is effective and connection actuation is canceled, the initial value of 82 and 83 will return to the initial value set up on each equipment before connection actuation.

Therefore, in case a user uses 82 and 83 independently after canceling connection actuation, he can use initial setting originally set up on 82 and 83 as it is.

[0069] Drawing 9 is drawing showing the example of a hard configuration at the time of connecting two sets of the digital plain papers copier 191 and 192 by the gestalt of operation of this invention.

[0070] As shown in drawing 9, the hard configuration of one set of a digital plain paper copier 191 has taken the almost same configuration as what was shown by example of hard configuration-I of drawing 7. Into this digital-plain-paper-copier-memory unit 174 of I191, since a transfer or the image data from a network is saved for the read image on an external network at the DRAM block section in a memory unit, SCSI194 (Small Computer System Interface) and the SCSI controller 193 are used as a network means. For a network communication means, various means, such as using the TCP/IP communication link of an OSI (Open System Interface) reference model for data communication, can be considered, using Ethernet (trademark) as a physical means.

[0071] Moreover, the transfer of control command like the notice of a condition inside the plane of each machine which exists on a network, or the remote output command mentioned later, and a setting command is also performed not to mention the image data transfer as mentioned above by using a configuration like drawing 9.

[0072] Drawing 10 is drawing showing the concept of the software by the gestalt of operation of this invention.

[0073] It is a digital plain paper copier, referring to drawing 9 and drawing 10. - It is a digital plain paper copier about the image read by I191. - The actuation (the following, remote output) transmitted to the image write-in section of II192 is explained.

[0074] the copy shown in drawing 10 -- the application which performs a copy sequence for an application 121 to perform copy actuation, and input/output control 122 are Rhea (device driver) who does logic / physical conversion of the data, and the control unit controller 123 is Rhea (Rhea who performs a LCD display, LED lighting / putting out lights, a key input scan, etc. with logical level) who performs MMI (Man Machine Interface). The circumference machine controller 124 is Rhea who performs control of the circumference machine with which PPC, such as an automatic double-sided unit, and a sorter, ADF, is equipped with logical level. The image formation equipment controller 125 is Rhea who performs control of the image write-in section with logical level, an image readout equipment controller is Rhea who performs control of the image readout section with logical level, and the memory unit 127 memorizes the picture signal read in the image reading section, and is performing actuation which transmits this image data to the image write-in section.

[0075] Moreover, the daemon process 128 exists in image data read-out saved in the memory unit 127, and image formation equipment as application which performs the duty which transmits image data, when a print request is requested from other machines on a network. The image transfer from other machines on a network

must be ended, before a daemon process 128 reads an image from the memory unit 127 and performs print actuation. Here, a control unit, a circumference machine, image formation equipment, image readout equipment, and a memory unit are treated as a resource (resource) which each PPC holds.

[0076] Digital plain paper copier of drawing 10 - When I131 performs copy actuation using each own resource (at the time of a print start key depression), each resource of a circumference machine and a memory unit is required of the system control section (system controller) 133 from the system control section (system controller) 133 image formation equipment, image readout equipment, or if needed. the system control section 133 -- a copy -- the demand from an application 121 -- receiving -- mediation of the royalty of a resource -- carrying out -- a copy -- the mediation result (use propriety) is notified to an application 121. Moreover, the royalty of a resource is required from the system controller of the remote digital plain paper copier which performs print actuation using the resource of another machine (henceforth, remote digital plain paper copier) which exists on a network.

[0077] the resource which a system holds in the case (condition by which network connection is not carried out) where digital-plain-paper-copier-I131 are used by the stand-alone -- all -- a copy -- since an application 121 is in the condition which can be occupied, copy actuation is performed immediately.

[0078] The system controller of a remote digital plain paper copier arbitrates a resource according to a demand, and notifies the result to the application of the machine of a requiring agency. Application performs an image transfer to the memory unit of the machine of the remote output point through a SCSI controller and SCSI (external interface)130, after performing the readout of an image and completing image storage into an own memory unit, when a royalty is permitted.

[0079] After an image transfer is completed and transmitting the monograph affairs (feed opening, delivery opening, print number of sheets, etc.) for carrying out print activation to the daemon process of the machine of the remote output point, a print initiation command is transmitted. If the daemon process of the remote output point receives a print initiation command, print initiation will be required from the own system controller of a machine which performs a remote output, and a remote output will be performed by the system controller.

[0080] Digital plain paper copier [- Use of the application of II131 (digital plain papers copier other than digital-plain-paper-copier-I131 when / or / two or more digital plain papers copier as shown in drawing 8 are connected on a network) is improper.] - It is a digital plain paper copier by I131. - When the memory unit of II132 is used, it is a digital plain paper copier. - The memory unit of II132 is a digital plain paper copier.

[0081] Drawing 11 is drawing showing the example of a configuration of the managerial system of the image formation equipment by the gestalt of operation of this invention.

[0082] It connects with the communication link control apparatus 217 and 219, and two or more PPC 211-215 is connected to management equipment 221 through the public line network 210. Moreover, telephone 216 and facsimile 218 are connected to the communication link control apparatus 217 and 219.

[0083] The communication link control apparatus 217 and 219 for controlling the communication link with management equipment are installed in the user side, and PPC of user origin is connected to this communication link control apparatus. Telephone 216 and facsimile 208 are connected to the communication link control apparatus 217, and installation is possible in the form inserted in a user's existing circuit at it. Although two or more PPC is connectable at the communication link control apparatus 217 and 219, of course, there may be an unit. A model which does not need to be the thing of isomorphism and is different may also be available for such PPC, and devices other than PPC are sufficient as it. Multidrop connection of a communication link control apparatus and two or more PPC is made by RS-485 specification.

[0084] Drawing 12 is drawing which is twisted in the gestalt of operation of this invention and in which showing the example of a configuration at the time of connecting two image formation equipments especially.

[0085] The data flow of the mode change information between connection copy equipment is explained referring to drawing 12 . In PPCI201, a control panel 203 is connected with a system controller 202 through the control-panel interface 207, and the connection actuation initiation inputted on the control panel and information, such as connection actuation termination, are told to a system controller. Moreover, a system controller 205 performs those information through the control-panel interface 207. In PPCII202, similarly, it connects through the control-panel interface 209, and a system controller 206 and a control panel 204 exchange I/O information.

[0086] PPCI201 and PPCII202 are connected with the connection interface 208. The system controller 205 of

PPCI can direct acquiring the input of the control panel 204 of PPCII202 through this interface, and the display to the control panel 204 of PPCII. The system controller 206 of PPCII can direct acquiring the input of the control panel 203 of PPCI through the connection interface 208, and the display to the control panel 203 of PPCI similarly.

[0087] Drawing 13 is a flow chart which shows the example of operation in the master machine at the time of connecting two image formation equipments which are the gestalten of operation of this invention.

[0088] First, a master machine is started (step S1). An operator does an initialization modification activity with the control panel of image formation equipment. The image formation equipment with which initial setting was set up serves as a master machine, one more image formation equipment serves as a slave machine, and these two image formation equipments will be in a connection condition (step S2). Next, a initial value is set up by the master on a plane (step S3). This initial value is transmitted to a slave machine through a network (step S4). A slave machine receives this initial value that transmitted, and the own initial value of a slave machine is changed based on this initial value. When this setting modification is completed, a slave machine notifies to a master machine that the initial value was completed. While a master machine counts time amount, it waits for this notice (step S5). When the response from a slave machine comes on the contrary, it indicates that the initial value modification activity was successful (step S6). In a certain set-up time amount, when there is no response from a slave machine, what the initial value modification activity went wrong is displayed (step S7).

[0089] Drawing 14 is a flow chart which shows the example of operation in the slave machine at the time of connecting two image formation equipments which are the gestalten of operation of this invention.

[0090] The change notice of a initial value is received from a master machine, and a initial value is received from a master machine (step S8). This initial value that received is set as its image formation equipment (step S9). After a setup of a initial value is completed, it notifies to a master machine that a setup was completed (step S10). When having not received the change notice of a initial value from a master machine, a change of a initial value is not made (step S11).

[0091] Drawing 15 is a flow chart which shows the example of claim 1 of operation of the image formation equipment which is the gestalt of operation of this invention.

[0092] It sets up by changing one's initial value on the control panel of image formation equipment (step S11). It notifies on other image formation equipments with which the changed initial value was connected with this image formation equipment (step S12). Next, the check of whether there is any image formation equipment which has not received the notice and which is connected, and no is performed (step S13). The image formation equipment with which the others which have not received the notice were connected does not exist, but when it is checked that the initial value had been set up on the image formation equipment with which others were connected based on the notified initial value, actuation of claim 1 is ended (step S14). If there is image formation equipment with which the others which have not received the notice were connected, a notice activity will be done again (step S15).

[0093] Drawing 16 is a flow chart which shows claim 2 of the image formation equipment which is the gestalt of operation of this invention, and the example of invention of five publications of operation.

[0094] Image formation equipment performs that check which is performing connection actuation with other image formation equipments (step S16). If it is [connection] under actuation, the flow chart of drawing 15 will be operated, initial setting will be notified to other image formation equipments for connection, and a initial value will be changed (step S17). When it is not [connection] under activity, the initial value changed from the control panel is set up only on its own equipment, and it does not notify to other opportunities (step S18).

[0095] Drawing 17 is a flow chart which shows claim 3 of the image formation equipment which is the gestalt of operation of this invention, and the example of invention of six publications of operation.

[0096] Its initial value is changed on the control panel of image formation equipment. Next, the selection carbon button of whether to confirm is displayed to other image formation equipments with which the changed initial value was connected (step S19). It receives for every image formation equipment with which others were connected, and chooses whether they are whether the changed initial value is confirmed and no (step S20). When the changed initial value was confirmed and it chooses, to other image formation equipments, the flow chart of drawing 15 is operated, initial setting is notified to other image formation equipments for connection, and a initial value is changed (step S21). When not confirming the changed initial value is chosen, the initial value changed from the control panel is set only to equipment from ** (step S22).

[0097]

[Effect of the Invention] It can suppose that it is effective with other image formation equipments with which initial setting set up on one image formation equipment of a certain arbitration was connected by invention according to claim 1, and the activity which changes initial setting on the connected image formation equipment can be excluded.

[0098] A user can choose using this image formation equipment for use or other image formation equipments on one image formation equipment of a certain arbitration, connecting it independently by invention of claim 2 and five publications.

[0099] It can choose whether they are whether a user presupposes that it is effective by invention of claim 3 and six publications for every image formation equipment of the others with which initial setting set up on one image formation equipment of a certain arbitration was connected, and no.

[0100] The initial value of other image formation equipments changed by three publications and invention of claims 4-7 on a certain one image formation equipment of arbitration from claim 1 by invention of claim 4 and seven publications Only when other image formation equipments are connection operating, in case it becomes effective and the time of independent actuation is carried out, the initial value originally set up on other image formation equipments can be used, and the activity which changes initial setting again can be excluded.

[Translation done.]

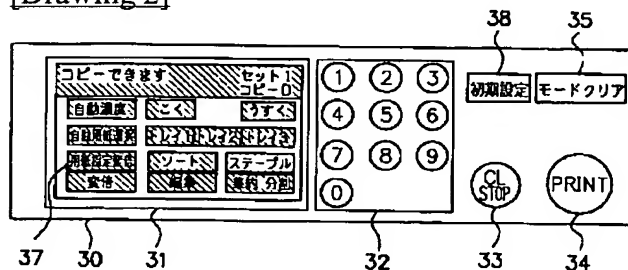
* NOTICES *

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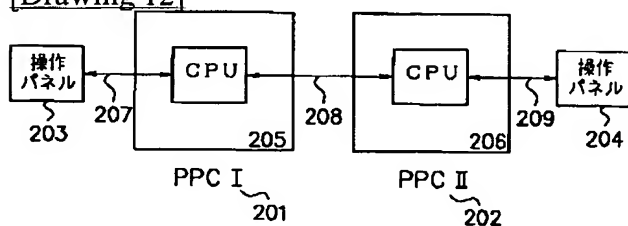
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, in any words are not translated.

DRAWINGS

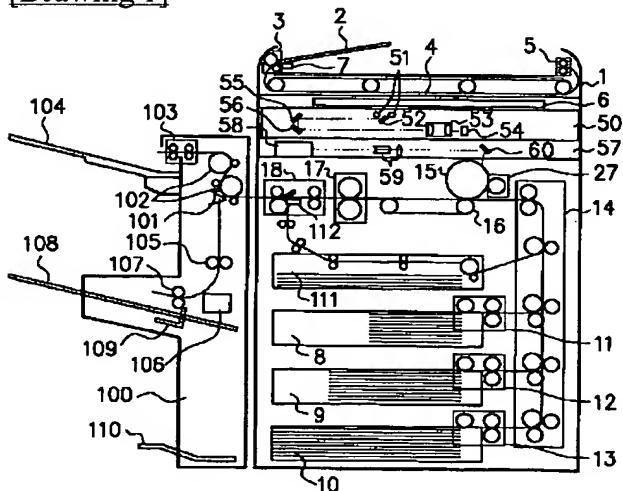
[Drawing 2]



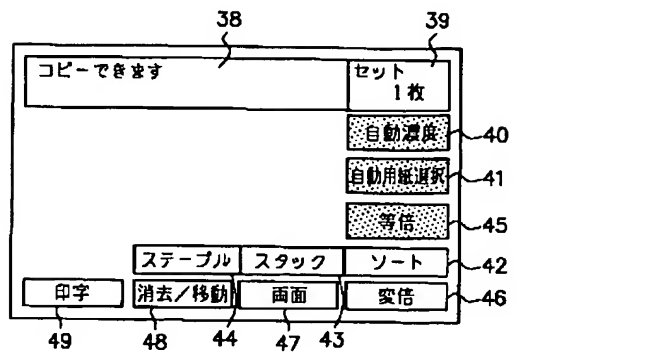
[Drawing 12]



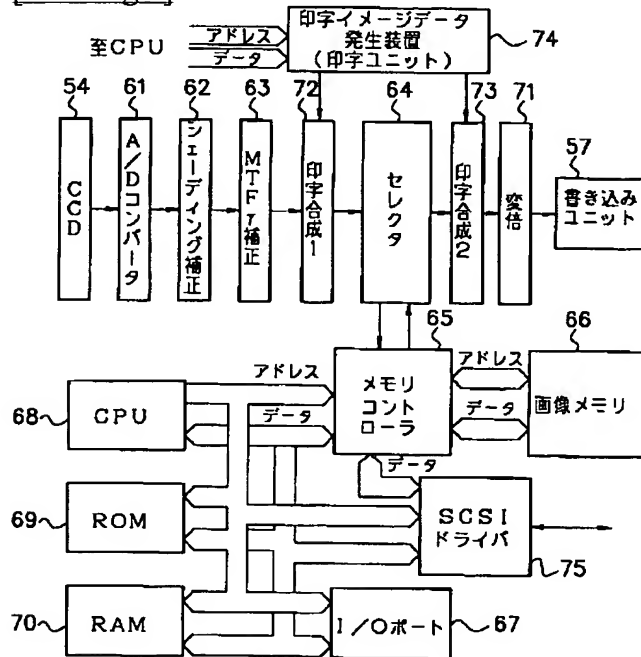
[Drawing 1]



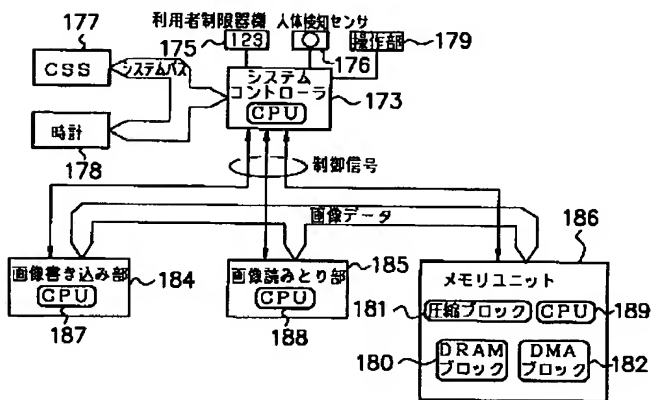
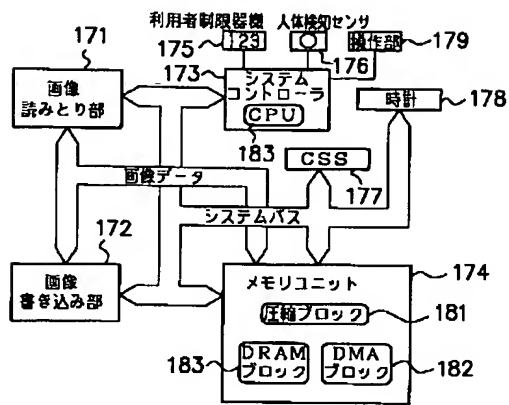
[Drawing 3]



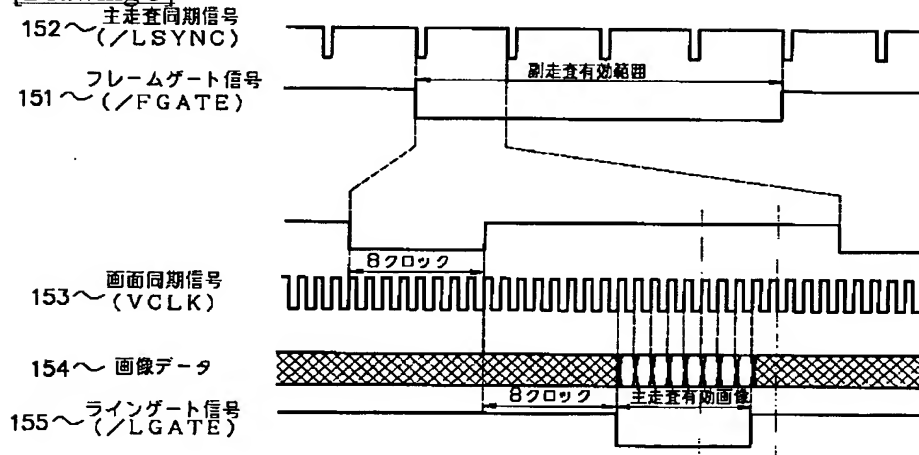
[Drawing 4]



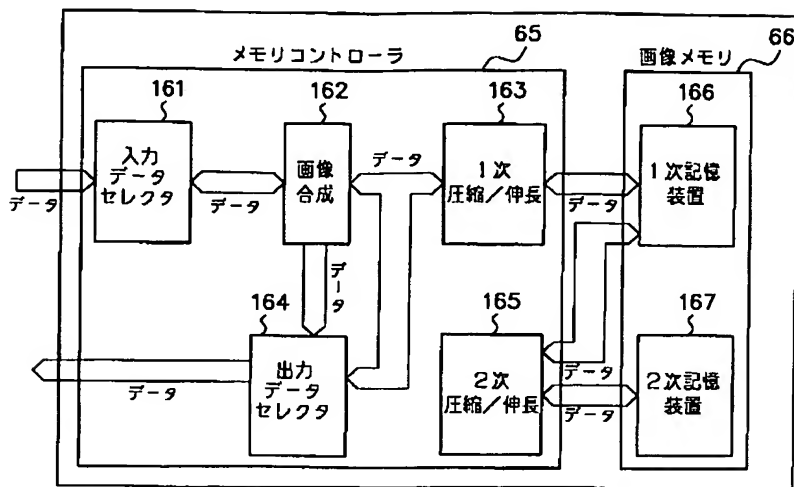
[Drawing 7]



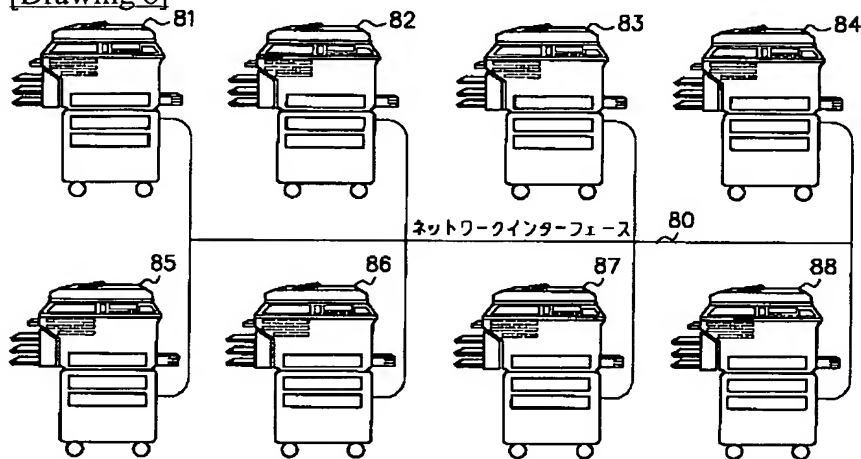
[Drawing 5]



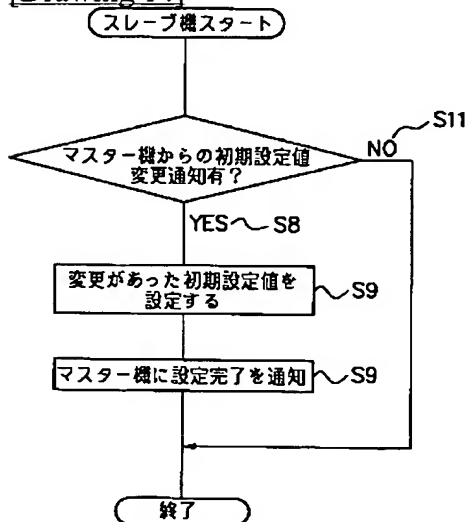
[Drawing 6]



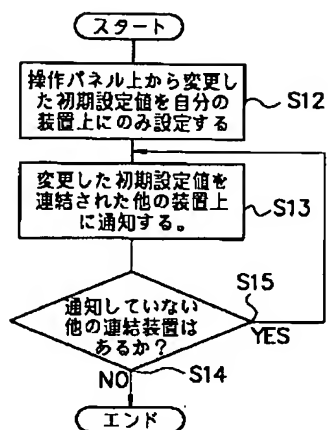
[Drawing 8]



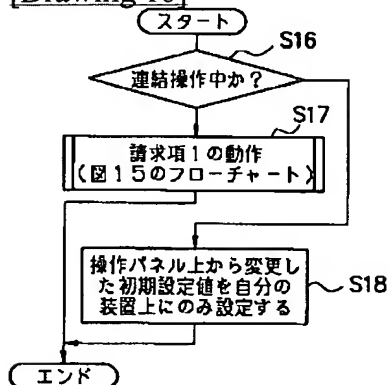
[Drawing 14]



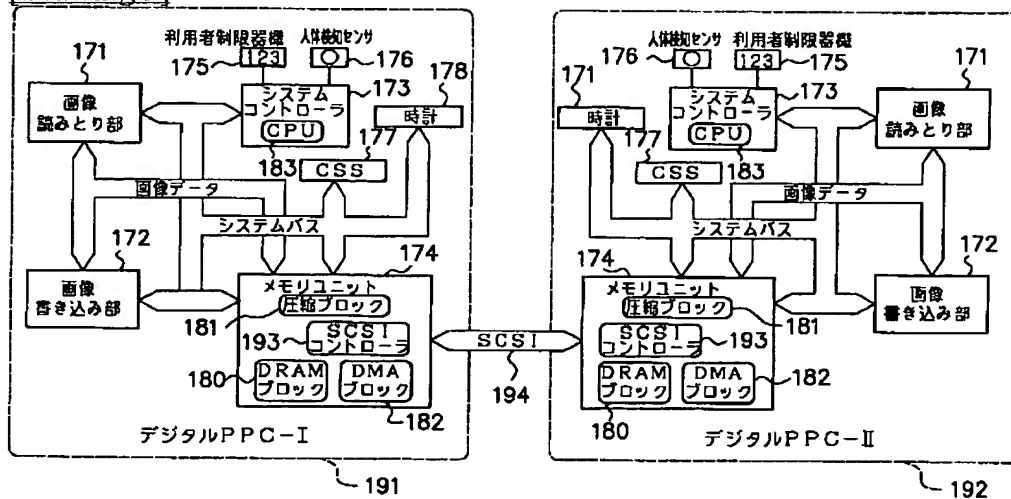
[Drawing 15]



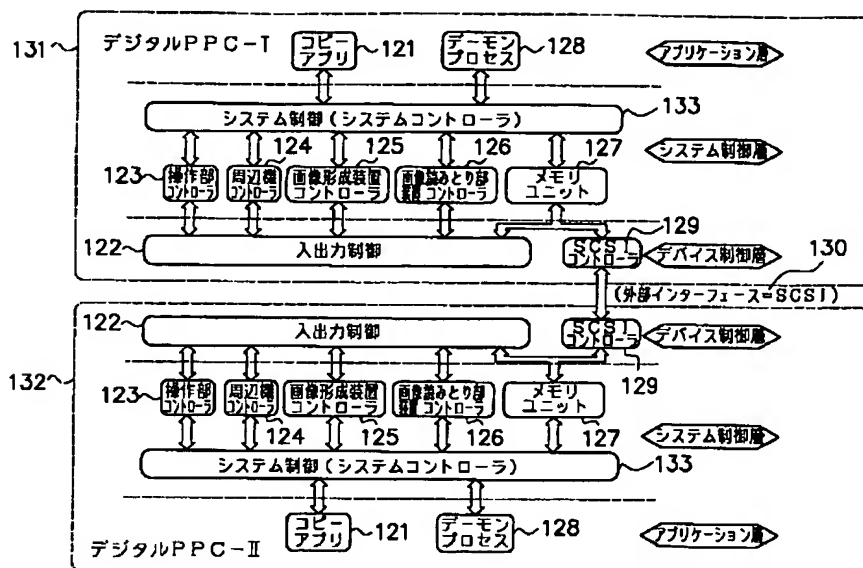
[Drawing 16]



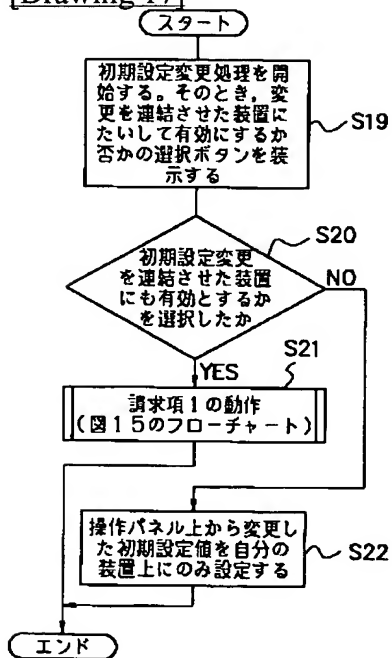
[Drawing 9]



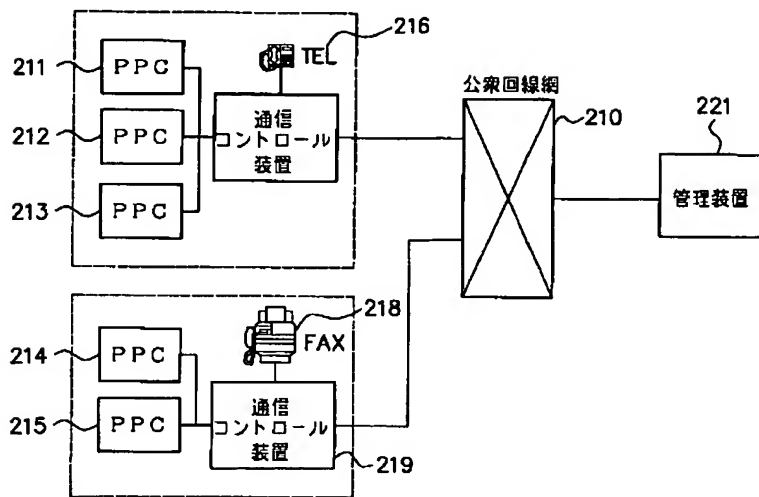
[Drawing 10]



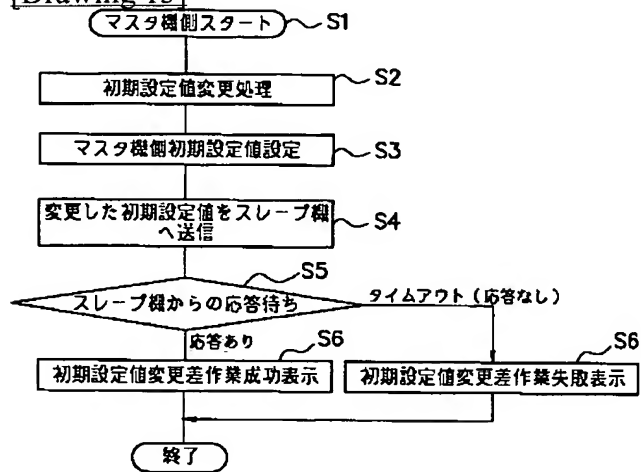
[Drawing 17]



[Drawing 11]



[Drawing 13]



[Translation done.]